

AWK-4131A 系列

戶外工業級 Wi-Fi 4 (802.11n) 無線 AP/橋接器/用戶端



特色與優點

- 2x2 MIMO 802.11a/b/g/n AP/橋接器/用戶端
- 毫秒等級的用戶端 Turbo Roaming 漫遊¹
- 透過 AeroMag 輕鬆設定與布署
- AeroLink 完整備援保護
- 透過網路位址轉譯 (NAT) 輕鬆設定網路
- 堅固耐用的工業設計，具有整合式天線與電源隔離
- IP68 等級防風雨外殼專為戶外應用以及 -40 至 75°C 的寬廣操作溫度範圍所設計
- 支援 5 GHz DFS 頻道，避免無線壅塞

認證



簡介

AWK-4131A IP68 戶外工業無線 AP/橋接器/用戶端支援 802.11n 並可進行 2X2 MIMO 通訊，資料傳輸速率高達 300 Mbps，滿足日益增長的資料傳輸需求。在操作溫度、電源輸入電壓、突波、ESD 和震動方面，AWK-4131A 符合工業標準及規定。兩個備援直流電源輸入提升電源的可靠性，而且 AWK-4131A 可透過 PoE 獲得供電，布署更方便。AWK-4131A 可以在 2.4 GHz 或 5 GHz 頻段上操作，並相容現有的 802.11a/b/g 布署。MXview One 網路管理工具程式的無線附加元件能夠以視覺化的方式呈現 AWK 的無線連線，確保整體的 Wi-Fi 連線能力。

先進 802.11n 工業無線解決方案

- 802.11a/b/g/n 相容的 AP/橋接器/用戶端，提供彈性的布署方式
- 軟體針對長距離無線通訊進行最佳化，具有高達 1 公里無障礙距離及外部高增益天線（僅適用於 5 GHz）
- 支援 60 個用戶端同時連線
- DFS 頻道支援提供更廣泛的 5 GHz 頻道選擇，避免現有無線基礎設施的干擾

適用於關鍵任務應用的先進無線技術

- 基於用戶端的 Turbo Roaming 快速漫遊，達到無縫漫遊的目的。¹ 在 AP 間的漫遊復原時間 < 150 毫秒（用戶端模式）
- AeroMag 支援自動配對更新設定，可用於工業應用的基本無線區域網路初始設定
- 支援 AeroLink 防護，在 AP 與其用戶端之間建立備援無線連結（< 300 毫秒回復時間）

工業級耐用性

- 整合式天線和電源隔離設計可提供 500 V 絕緣保護，防止外部電氣干擾
- 完整的 IP68 防水防塵機器設備保護
- -40 至 75°C 的寬廣操作溫度型號可在惡劣環境中提供順暢的無線通訊

透過 MXview Wireless 進行無線網路管理

- 動態拓撲視圖一目了然顯示無線連結狀態及連線變化
- 視覺化的互動式漫遊播放功能，可檢閱用戶端的漫遊記錄
- 個別 AP 和用戶端裝置的詳細裝置資訊及效能指標圖表

1. 此處所指的 Turbo Roaming 快速漫遊復原時間是在最佳狀態下，配置無干擾 20 MHz RF 頻道、WPA2-PSK 安全性和預設的 Turbo Roaming 快速漫遊參數，所得到的測試結果平均值。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。

規格

WLAN Interface

WLAN Standards	802.11a/b/g/n 802.11i Wireless Security			
Modulation Type	DSSS OFDM MIMO-OFDM			
Frequency Band for US (20 MHz operating channels)	2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ² 5.745 to 5.825 GHz (5 channels)			
Frequency Band for EU (20 MHz operating channels)	2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ²			
Frequency Band for JP (20 MHz operating channels)	2.412 to 2.484 GHz (14 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.240 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ²			
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2-Personal			
Transmission Rate	802.11b: 1 to 11 Mbps 802.11a/g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps			
Transmitter Power for 802.11a	23±1.5 dBm @ 6 to 24 Mbps 21±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 18±1.5 dBm @ 54 Mbps			
Transmitter Power for 802.11n (5 GHz)	23±1.5 dBm @ MCS0/8 20 MHz 18±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 17±1.5 dBm @ MCS7/15 40 MHz			
Transmitter Power for 802.11b	26±1.5 dBm @ 1 Mbps 26±1.5 dBm @ 2 Mbps 26±1.5 dBm @ 5.5 Mbps 25±1.5 dBm @ 11 Mbps			
Transmitter Power for 802.11g	23±1.5 dBm @ 6 to 24 Mbps 21±1.5 dBm @ 36 Mbps 19±1.5 dBm @ 48 Mbps 18±1.5 dBm @ 54 Mbps			
Transmitter Power for 802.11n (2.4 GHz)	23±1.5 dBm @ MCS0/8 20 MHz 18±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 17±1.5 dBm @ MCS7/15 40 MHz			
Transmitter Power				
		US	EU	JP
	2.4 GHz	26 dBm	18 dBm	18 dBm
	5 GHz (UNII-1)	23 dBm	21 dBm	21 dBm
	5 GHz (UNII-2)	23 dBm	21 dBm	21 dBm
	5 GHz (UNII-2e)	23 dBm	23 dBm	23 dBm

2. 支援 DFS (動態頻率選擇) 頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。

		US	EU	JP
	5 GHz (UNII-3)	23 dBm	–	–
	Note: Based on regional regulations, the maximum transmission power allowed on the UNII bands is restricted in the firmware, as indicated above.			
Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -90 @ 6 Mbps Typ. -88 @ 9 Mbps Typ. -88 @ 12 Mbps Typ. -85 @ 18 Mbps Typ. -81 @ 24 Mbps Typ. -78 @ 36 Mbps Typ. -74 @ 48 Mbps Typ. -72 @ 54 Mbps Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications.			
Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)	Typ. -69 dBm @ MCS7 20 MHz Typ. -71 dBm @ MCS15 20 MHz Typ. -63 dBm @ MCS7 40 MHz Typ. -68 dBm @ MCS15 40 MHz Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications.			
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -93 dBm @ 1 Mbps Typ. -93 dBm @ 2 Mbps Typ. -93 dBm @ 5.5 Mbps Typ. -88 dBm @ 11 Mbps			
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -88 dBm @ 6 Mbps Typ. -86 dBm @ 9 Mbps Typ. -85 dBm @ 12 Mbps Typ. -85 dBm @ 18 Mbps Typ. -85 dBm @ 24 Mbps Typ. -82 dBm @ 36 Mbps Typ. -78 dBm @ 48 Mbps Typ. -74 dBm @ 54 Mbps			
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	Typ. -70 dBm @ MCS7 20 MHz Typ. -69 dBm @ MCS15 20 MHz Typ. -67 dBm @ MCS7 40 MHz Typ. -67 dBm @ MCS15 40 MHz			
WLAN Operation Mode	Access point Client Client-Router Master Slave Sniffer			
Antenna	External, 3/6 dBi Omni-directional			
WLAN Antenna Connector	2 N-type female			

Ethernet Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3at for PoE IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging
PoE Ports (10/100/1000BaseT(X), RJ45 connector)	1

Ethernet Software Features

Management	DHCP Server/Client DNS HTTP IPv4 LLDP Proxy ARP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN Wireless Search Utility MXview One MXview Wireless MXconfig
Routing	Static Route NAT Port forwarding
Redundancy Protocols	RSTP STP
Security	HTTPS/SSL RADIUS SSH
Time Management	SNTP Client

Firewall

Filter	ICMP MAC address IP protocol Port-based
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Serial Interface

Console Port	RS-232 8-pin RJ45
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LED Interface

LED Indicators	PWR, FAULT, STATE, WLAN, LAN
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Input/Output Interface

Alarm Contact Channels	Relay output with current carrying capacity of 1 A @ 24 VDC
Buttons	Reset button
Digital Inputs	+13 to +30 V for state 1 +3 to -30 V for state 0 Max. input current: 8 mA

Physical Characteristics

Housing	Metal
IP Rating	IP68
Dimensions	224 x 147.7 x 66.5 mm (8.82 x 5.82 x 2.62 in)
Weight	1,400 g (3.09 lb)
Installation	Wall mounting (standard) DIN-rail mounting (optional) Pole mounting (optional)

Power Parameters

Input Current	0.64 A @ 12 VDC, 0.16 A @ 48 VDC
Input Voltage	12 to 48 VDC Redundant dual inputs 48 VDC Power-over-Ethernet
Power Connector	M12 A-coded 5-pin male connector
Power Consumption	7.68 W (max.)
Reverse Polarity Protection	Supported

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Radio	EN 300 328 EN 301 489-1/17 EN 301 893 FCC ID SLE-WAPN008 ANATEL MIC NCC RCM SRRC WPC KC
Safety	EN 62368-1 UL 60950-1
Cybersecurity	EN 18031-1
Vibration	IEC 60068-2-6

MTBF

Time	440,764 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

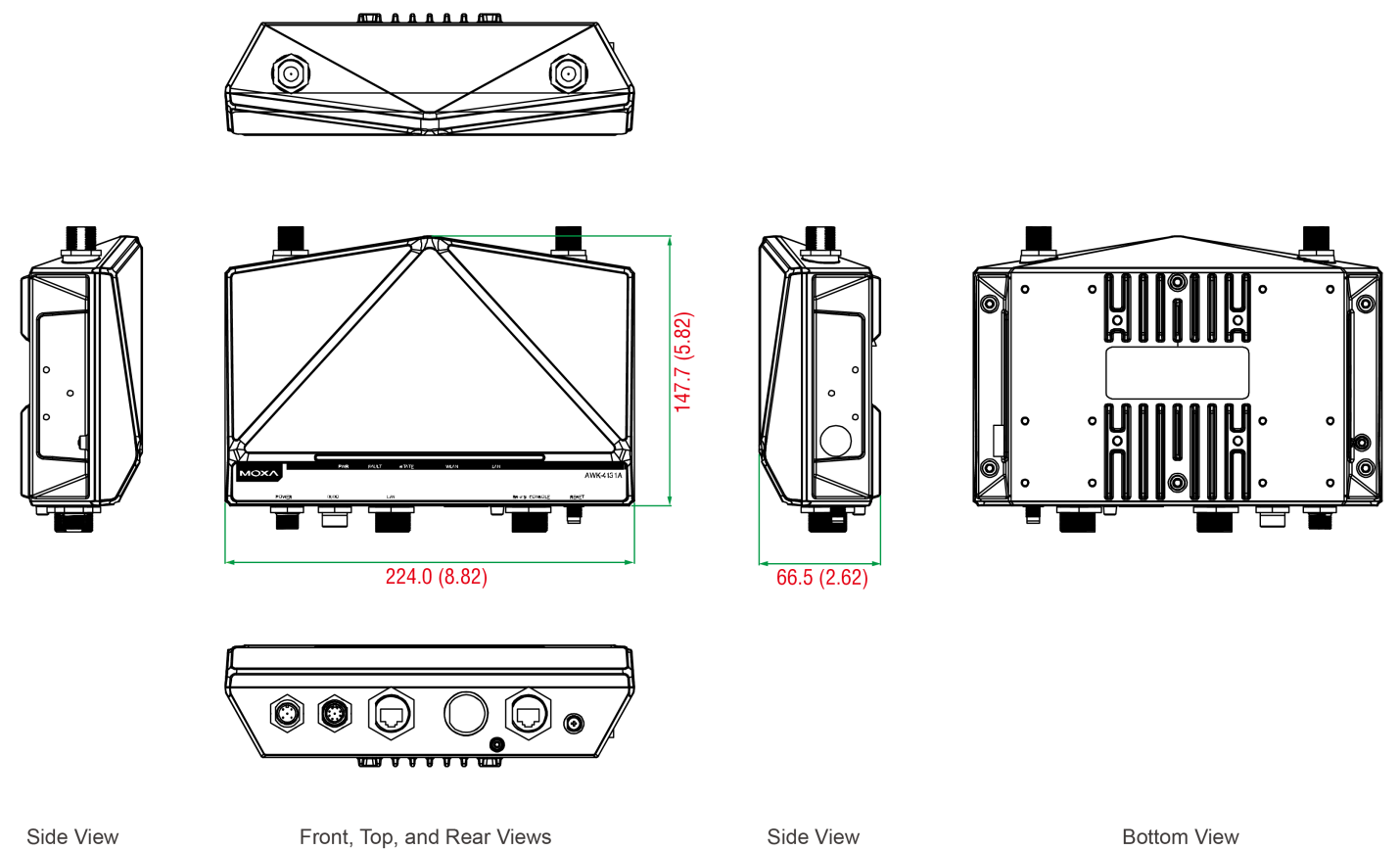
Package Contents

Device	1 x AWK-4131A Series wireless AP/bridge/client
Installation Kit	1 x cap, female, metal, for M12 port

	1 x cap, metal, for RJ45 port 1 x field-installable power plug 1 x field-installable RJ45 plug 1 x stick, transparent plastic, for field-installable plug 2 x wall-mounting kit
Antenna	2 x 2.4/5 GHz antenna
Documentation	1 x quick installation guide 1 x warranty card

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	Band	Standards	Operating Temp.
AWK-4131A-EU-T	EU	802.11a/b/g/n	-40 to 75°C
AWK-4131A-JP-T	JP	802.11a/b/g/n	-40 to 75°C
AWK-4131A-US-T	US	802.11a/b/g/n	-40 to 75°C

配件（選購）

Antennas

ANT-WDB-ONF-0709	7 dBi at 2.4 GHz or 9 dBi at 5 GHz, N-type (female), dual-band, omnidirectional antenna
ANT-WDB-ANM-0306	3 dBi at 2.4 GHz or 6 dBi at 5 GHz, N-type (male), omnidirectional antenna
ANT-WDB-ONM-0707	07 dBi at 2.4 GHz and 07 dBi at 5 GHz, N-type (male), dual-band omnidirectional antenna
ANT-WDB-ANM-0502	5 dBi at 2.4 GHz or 2 dBi at 5 GHz, N-type (male), omnidirectional antenna

ANT-WDB-ARM-02	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male) omnidirectional rubber-duck antenna
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-WDB-PNF-1011	10 dBi at 2.4 GHz and 11 dBi at 5 GHz, N-type (female), dual-band directional antenna
MAT-WDB-CA-RM-2-0205	2.4/5 GHz, ceiling antenna, 2/5 dBi, MIMO 2x2, RP-SMA-type (male)
MAT-WDB-DA-RM-2-0203-1m	2.4/5 GHz, desktop antenna, 2/3 dBi, MIMO 2x2, RP-SMA-type (male), 1 m cable
MAT-WDB-PA-NF-2-0708	2.4/5 GHz, panel antenna, 7/8 dBi, MIMO 2x2, N-type (female)
ANT-WSB5-PNF-16	16 dBi at 5 GHz, N-type (female), single-band directional antenna
ANT-WSB-PNF-12-02	12 dBi at 2.4 GHz, N-type (female), single-band directional antenna
ANT-WSB-AHRM-05-1.5m	5 dBi at 2.4 GHz, RP-SMA (male), omnidirectional/dipole antenna, 1.5 m cable

Wireless Antenna Cables

A-CRF-NMNM-LL4-300	N-type (male) to N-type (male) LMR-400 Lite cable, 3 m
A-CRF-NMNM-LL4-600	N-type (male) to N-type (male) LMR-400 Lite cable, 6 m
A-CRF-NMNM-LL4-900	N-type (male) to N-type (male) LMR-400 Lite cable, 9 m

Connectors

M12A-5P-IP68-SCREW	Field-installable A-coded M12 screw-in 5-pin (female) connector, IP68
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Wireless AP Connector Cables

M12A-8PFF-IP68	Field-installation A-coded M12 screw-in 8-pin connector, female connector female PIN
M12A-8PMM-IP68	Field-installation A-coded screw-in Gigabit Ethernet connector, 8-pin male M12 connector, IP68-rated
A-PLG-WPRJ	Field-installation RJ-type plug

Wireless Connector Caps

A-CAP-N-M	A-CAP-N-M
A-CAP-WPRJ45-MC	Metal cap with chain for RJ45 connector

Surge Arrestors

A-SA-NFNF-02	0 to 6 GHz, N-type (female) to N-type (female) surge arrester
A-SA-NMNF-02	0 to 6 GHz, N-type (male) to N-type (female) surge arrester

Wireless Adapters

A-ADP-RJ458P-DB9F-ABC01	DB9 female to RJ45 connector for the ABC-01 Series
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Wireless Terminating Resistors

A-TRM-50-NM	50-ohm termination resistor with N-type male connector
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Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws
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Wireless AP Mounting Kits

WK-55	Wall mounting kit with 2 plates (55 x 34.5 x 2.5 mm) and 6 screws
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